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EXAMINER	
MARKHAM, WESLEY D	
ART UNIT	**PAPER NUMBER**
1762	

DATE MAILED: 10/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

9

Office Action Summary	**Application No.** 10/685,552	**Applicant(s)** PETHE ET AL.
	Examiner Wesley D Markham	**Art Unit** 1762

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 19 August 2004.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-9 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) 3 and 4 is/are allowed.

6)☒ Claim(s) 1 and 5-9 is/are rejected.

7)☒ Claim(s) 2 is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 14 October 2003 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Acknowledgement is made of the amendment filed by the applicant on 8/19/2004, in which the specification of the instant application was amended, Claims 1 – 3 were amended, Claims 5 – 9 were added, and sheet 2/2 of the drawings filed on 10/14/2003 (i.e., the sheet containing Figure 3) was deleted. **Claims 1 – 9** are currently pending in U.S. Application Serial No. 10/685,552, and an Office Action on the merits follows.

Drawings

2. The objections to the drawings, set forth in paragraph 5 of the previous Office Action (i.e., the non-final Office Action mailed on 6/30/2004), are withdrawn in light of the applicant's amendment in which superfluous Figure 3 was deleted. As such, the formal drawings (1 sheet, 2 figures) filed by the applicant on 10/14/2003 are approved by the examiner.

Specification

3. The objections to the specification, set forth in paragraph 6 of the previous Office Action, are withdrawn in light of the applicant's amendments to correct the various informalities noted by the examiner.

Claim Objections

4. **Claim 2** is objected to because of the following informalities: In line 2 of the claim, the phrase, "volatile gelatinous material for in a high vacuum environment..." appears to contain a typographical error (i.e., the word "use" is missing between the words "for" and "in"), thereby making the wording of the claim unclear. Appropriate correction is required.

5. **Claim 8** is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Specifically, Claim 8 requires that the volatile gelatinous material be polymer dispersed liquid crystal (PDLC). However, Claim 3, from which Claim 8 depends, already requires that the material / layer be PDLC. Therefore, Claim 8 does not further limit the subject matter of Claim 3.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

8. **Claim 8** recites the limitation "the volatile gelatinous material" in lines 1 – 2 of the claim. There is insufficient antecedent basis for this limitation in the claim. Specifically, Claim 3, from which Claim 8 depends, recites a PDLC material, not the broader genus of "volatile gelatinous material" as recited in Claim 8. As such, it is unclear what the applicant is referring to when reciting "the volatile gelatinous material" in the context of Claim 8, and the scope of Claim 8 is vague and indefinite.

9. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

10. **Claims 5 and 6** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Specifically, newly added Claims 5 and 6 require that the stress absorbing polymeric layer include a hardening agent (Claim 5), wherein the hardening agent comprises oxide nano-particles (Claim 6). After reviewing the applicant's specification as originally filed, the examiner notes that the only disclosure of a "hardening agent" in the context of the claimed invention is of, "silica (SiO_2) or other low refractive index dielectric nanoparticles that are not chemically reactive and which help in the hardening of the adhesive layer" (see page

4, lines 10 – 12 of the specification). Therefore, the applicant's specification as originally filed does not have support (either explicit, implicit, or inherent) for the broad genus of "a hardening agent" as is now claimed in Claim 5, or the genus of "oxide nano-particles", as is now claimed in Claim 6. In other words, Claims 5 and 6 contain subject matter (e.g., the genus of "a hardening agent", and the genus of "oxide nano-particles", other than the originally disclosed low refractive index dielectric nano-particles such as silica) which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order

for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

13. Claims 1, 7, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Konuma et al. (USPN 5,357,356) in view of Beitinger et al. (US 2002/0130033 A1), Rukavina et al. (USPN 6,110,327), and Ohno et al. (USPN 4,975,168) for the reasons set forth in paragraph 11 of the previous Office Action and below.

14. Specifically, the combination of Konuma et al., Beitinger et al., Rukavina et al., and Ohno et al. teaches all the previously present limitations of **Claim 1** (see paragraph 11 of the previous Office Action for details regarding these limitations), as well as the newly added limitations. Specifically, amended Claim 1 requires that the substrate be, "a solid substrate". The substrate of Konuma et al. is used to support various different layers in an electro-optical device (e.g., a PDLC layer, an electrode layer, etc.) and is described as being a film or a sheet (see Abstract, Figure 1, Col.4, lines 54 – 68, and Col.7, lines 38 – 61). Therefore, the substrate of Konuma et al. is "solid", as required by the claims. Additionally, Claim 1 now requires that the polymeric layer of adhesive material be applied to inhibit evaporation of the underlying volatile gelatinous material. This limitation is not explicitly taught by the combination of Konuma et al., Beitinger et al., Rukavina et al., and Ohno et al. However, such a limitation is simply a statement of the "intended use" of the polymeric layer of adhesive material, and as such, is not sufficient to overcome the 103 rejection based on the combination of Konuma et al., Beitinger et al., Rukavina

et al., and Ohno et al., which reasonably suggests performing each and every process step of the applicant's claims. Further, since the combination of Konuma et al., Beitinger et al., Rukavina et al., and Ohno et al. teaches each and every limitation of the applicant's claims (e.g., depositing an adhesive polymeric layer onto the surface of a volatile gelatinous material – PDLC – and depositing a material on the polymeric layer by PVD in a high vacuum), the process of the aforementioned combination of references would have inherently inhibited the evaporation of/from the volatile gelatinous material (PDLC) due to the presence of the polymeric adhesive layer on top of the PDLC material during the high vacuum PVD process. Regarding **Claim 7**, Konuma et al. also teaches that the volatile gelatinous material is PDLC (Abstract, Col.1, lines 31 – 44, and Col.7, lines 25 – 30 and 45 – 55). Regarding **Claim 9**, Konuma et al. also teaches that the electrode (i.e., the "intended material") deposited on the underlying layer by sputtering (i.e., PVD) (Col.7, lines 55 – 61) can be ITO, zinc oxide, etc. (Col.4, lines 58 – 61). Such materials are reasonably considered to be "dielectrics", as claimed by the applicant (see, for example, paragraph [0037] of Kawamura et al. (US 2003/0096056 A1), which is simply cited to show that ITO and zinc oxide are "dielectric" materials).

15. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Konuma et al. (USPN 5,357,356) in view of Beitinger et al. (US 2002/0130033 A1), Rukavina et al. (USPN 6,110,327), and Ohno et al. (USPN 4,975,168), in further view of Reed et al. (USPN 5,051,308).

16. The combination of Konuma et al., Beitinger et al., Rukavina et al., and Ohno et al. teaches all the limitations of **Claims 5 and 6** as set forth above in paragraph 14, except for a method wherein the primer (i.e., the stress absorbing polymeric layer) includes a hardening agent, specifically oxide nano-particles. However, Reed et al. teaches that, in the art of utilizing a primer to enhance the adhesion between a plastic / polymeric substrate and a subsequently vapor deposited layer of an oxide material (i.e., a process analogous to that of the combination of Konuma et al., Beitinger et al., Rukavina et al., and Ohno et al.), it is desirable to add nano-particles of colloidal silica (i.e., a hardening agent comprising oxide nano-particles) to the primer in order to increase the hardness of the primer layer (Abstract, Col.2, lines 62 – 68, Col.5, lines 1 – 7 and 37 – 68, Col.6, lines 20 and 40 – 66, Col.7, line 3, and Col.8, lines 9 – 14). Therefore, it would have been obvious to one of ordinary skill in the art to utilize a polymeric primer layer comprising oxide nano-particles as the primer in the process of the combination of Konuma et al., Beitinger et al., Rukavina et al., and Ohno et al. with the reasonable expectation of successfully and advantageously obtaining the benefits of using a primer in general (e.g., (1) reducing the effects of stress on the metal oxide coating, (2) providing good adhesion to the sputtered metal oxide coating without undesirable distortion of light, and (3) providing good solvent resistance) along with the added benefit of using a primer that has increased hardness (e.g., for increased durability).

Response to Arguments

17. Applicant's arguments filed on 8/19/2004 have been fully considered but they are not persuasive.

18. First, the applicant argues that the Konuma reference teaches depositing ITO onto two similar substrates, mating the two substrates with a gap in between, and then injecting a PDLC material into the gap between the substrates, not depositing ITO onto the PDLC. In response, this argument is not convincing for the following reasons. While Konuma does teach the ITO coating / substrate mating / PDLC injecting embodiment discussed by the applicant, Konuma also teaches an embodiment in which the electrode / ITO is deposited by sputtering onto the previously deposited PDLC material (see Col.7, lines 38 – 61). This teaching of Konuma directly contradicts the applicant's argument.

19. Second and regarding the Rukavina patent, the applicant argues that the substrates used in the process of Rukavina are only plastic substrates and not volatile material (PDLC) coated substrates, as required by the claims. In response to applicant's arguments against the references individually (i.e., the Rukavina patent), one cannot show non-obviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). In this case, Rukavina has not been relied upon to show a volatile material (PDLC) coated substrate – Konuma teaches such a limitation.

20. Additionally and regarding the applicant's statement that, "attempts to vacuum deposit dielectrics directly onto polyurethane-coated PDLC do not work" appears to be speculation on the part of the applicant and is not supported by the art or evidence of record. Further, the aforementioned statement appears to be contradictory to the applicant's disclosure (see paragraphs [0011] and [0018] of the specification, which clearly shows that dielectrics can be vacuum deposited onto polyurethane-coated PDLC).

Allowable Subject Matter

21. Claim 2 is objected to for the reasons set forth above, but no art has been applied against the claim. Claim 8 is objected to and rejected under 35 U.S.C. 112 for the reasons set forth above, but no art has been applied against the claim. Claims 3 and 4 are allowed.

22. The following is a statement of reasons for the indication of allowable subject matter: The prior art of record, alone or in combination, does not teach or reasonably suggest performing the applicant's claimed process of directly coating a volatile gelatinous material (e.g., a polymer dispersed liquid crystal (PDLC) material) in a high vacuum (i.e., by applying a layer of such material onto a substrate, applying a stress absorbing polymeric layer of adhesive material to the surface of the gelatinous/PDLC material, and coating the stress absorbing polymeric layer by PVD), wherein the PVD coating is a plurality of layers of dielectric material forming a

mirror or dielectric layers formed in pairs of low and high index of refraction materials.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wesley D Markham whose telephone number is (571) 272-1422. The examiner can normally be reached on Monday - Friday, 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive Beck can be reached on (571) 272-1415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Wesley D Markham
Examiner
Art Unit 1762

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